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Vol. XII OCTOBER, 1942 No. 8

THE DENTAL HYGIENE PROGRAM IN THE PUBLIC SCHOOLS

CLARA J. STADLINGER
Dental Hygienist, Lockport, N. Y.

It is fitting to introduce the dental hygiene program, and it would not be complete without it, by a history of the conditions which led to the movement.

The dental profession is, approximately a hundred years old; consequently, comparatively new. In the beginning, teeth were cleaned by the dentist, not for health, but for a respectable appearance. The method of cleaning (the only term used for the service) was very crude, as sticks were used to polish the exposed surfaces, frequently injuring the gum tissue and producing peridontal infections. Later it was discovered that insidious peridontal infections could be prevented by proper prophylactic treatments and that the incidence of dental caries would, likewise, decrease. Of additional interest were the clinical reports that chronic diseases of the body resulting from the peridontal infections as a foci of infections were greatly reduced. Thus arose a greater demand upon the dental profession for preventive work than they either cared to take up or for which the dental colleges could meet the need. Much was written in the early nineties regarding "prophylaxis", and plans were suggested for "enlistments in a field of useful service". This gave rise to the creation of a profession which would aid the dentist in this branch of service.

Educators throughout the United States conceived the idea that a group of young women could be given training to render such services. Credit is given to Dr. A. C. Fones of Bridgeport, Connecticut, who planned the first course for dental hygienists in his office in 1913.[1] Dr. Fones believed that this training should be used to demonstrate to school children the value of proper home

1 "Mouth Hygiene" by Dr. A. C. Fones, pp. 333-357. "The History of the Dental Hygiene Movement" by Carmen Bleser, Junior A.D.H.A. Member, 1941, Northwestern University Dental School, Chicago, Ill., The Journal of the American Dental Hygienists' Association, April 1941, pp. 47-49.

care of their teeth and the understanding of the principles of mouth hygiene. Prior to this first hygienists' class, the Board of Education of Bridgeport, Connecticut, was interested in the program and appropriated $5000 to demonstrate the value of a dental clinic for educational and preventive measures. Ten graduates of the first class started their work in the Bridgeport schools, and met with such success that other classes were demanded. In 1915 an amendment to the Connecticut dental law permitted the practice of dental hygienists.

The dental health program in New York State was started in 1910 when Dr. Eugene Porter, State Commissioner of Health, appointed two dentists to lecture on oral hygiene in the schools. The result was that school authorities became so interested that the Medical Inspection Law of 1913 provided for the employment of dentists and dental hygienists in the schools of the State. The power of administration was to be invested in the State Education Department. However, training of hygienists was not begun until 1916, after which such schools as the Rochester Dental Dispensary and the Vanderbilt Clinic of Columbia University, now conducted by the College of Dentistry, were started. At present there are sixteen training schools in the United States, and thirty-four States have allowed the hygienist to practice.

Under the Medical Inspection Law, more than three hundred dentists gave one hour of their time free to those school children whose parents could not afford dental services. Much progress was made in the coming years, so in 1918 a full time State Oral Hygiene Supervisor was appointed. As time passed, it was realized that an educational program would be more effective than merely provision for free service. In 1925, a dental hygienist was appointed in the Department of Health, and serves in the Division of Maternity, Infancy and Child Hygiene.[2]

The United States Public Health Service in its reports to the White House Conference on Child Health Hygiene[3] reveal that 95% of the school children need dental attention. This high percentage makes dental disease the prevalent defect among school children. Much has been done in the public school health program to reduce communicable diseases. The program consists of immunization for the control of diphtheria and smallpox, the teaching of sanitary

2 "Oral Hygiene Program in the School" by Dr. Van Alstine, Journal of School Health, Vol. IX, No. 7, September 1939, pp. 202-203.
3 "Dental Health Program for the Child", Journal of School Health, Vol. IX, No. 7, September 1939, pp. 204-6.

conditions for the control of certain diseases, and the control of tuberculosis and other communicable diseases by thorough examination and isolation. Unfortunately, to date, none of these techniques prevent dental disease. Consequently, health education, as a last resort, is being tested in the modern school health program. Although it has encountered many headaches in its administration, recent surveys show a decrease in serious dental disease. Only a healthy mouth and sound teeth can aid in proper digestion and thorough assimilation of food. This, in addition to intelligent selections as to the kinds and quantity of food, produces the result, which is the proper development of the body and its fortification of disease.

Parents and communities must be enlightened as to the physical harm which results from decayed and infected teeth. They must know that in addition to improper mastication and nourishment, pockets of decayed teeth harbor such harmful bacteria as diphtheria, pneumonia and tuberculosis. Infected teeth cause many systemic disorders as they are a constant foci of infection. Infections of the tonsils, the heart, and the kidney are a few of the results.

How can children have clean and healthy mouths and how can their parents aid them? The public school is the logical place since the child spends, aside from the home, most of his time in that institution. Likewise, it has been proven that preventive measures can be more effectively taught to children during the period of development. It is desirable to have the pupil participate in the health service program in his school, so that he may gather valuable health information and mold his everyday life around it. Later he will become aware of his own health problems, how to solve them—in fact, he will be fully equipped with the knowledge of healthful living, of adequate medical and dental service, and of how to maintain a healthy mouth and a sound set of teeth.

How can parents be educated in preventive and corrective dentistry for their children? Indifference in their attitudes has produced a problem—far from solution yet. However, experience has proved that parents will show an interest if they can be influenced in becoming members of a civic group and participate in its activities, not as individuals, but as a group. Since this fact is recognized, school dental health administrators make every effort to include civic groups and parental clubs in their programs.

One theory of dental decay is the lack of hard foods and the great tendency to overconsumption of sweets. An adequate supply of minerals and vitamins is too often lacking—calcium, phosphor-

ous, iron, Vitamins A, B, C, D are the most important. The correlation of sweets to decay did not begin in the 20th century. A. Tolver in "A Treatise on Teeth", published in 1752 reads: "All kinds of sweetmeats and sugar contribute very much to the destruction of teeth; besides, sugars are of an acid penetrant and corrosive nature. Those who love sugar and use it much, rarely have good teeth". Aristotle, who lived from 384 to 322 B. C. made a similar statement.

Who is responsible for the instruction of the dental health program? A portion is included in the program of the classroom teacher who should teach health lessons as a routine subject in the curriculum. The dental hygiene teacher should supply her and assist her with oral health information and material for demonstration. The school nurse, likewise, has some of the duties in her program, such as follow-up examinations. However, the major responsibility rests on the school dentist and dental hygiene teacher, and rightly so.

The duties of the dentist and dental hygiene teacher are twofold, namely: (1) educational and (2) operative. The educational duties are practically the same; that is, instruction as to the care of the teeth, theories of dental decay, and proper nutrition. The operative functions are obviously different. The dental hygiene teacher cleans and examines the teeth, and gives individual instruction in home care and proper use of the toothbrush. The dentist and hygiene teacher must have, in addition to professional knowledge, sufficient personality and ability in public speaking to sell their program. Both are frequently called upon to speak before the P.T.A., Women's Club, public health groups, or other civic and church organizations. The dental hygiene teacher, through home visits with the school nurse, advises parents or guardians in regard to existing dental defects. She must use every possible opportunity to promote mouth health habits among pupils, teachers, and parents.

The dental hygiene teacher must plan her day of activity in such a way as to arrange certain hours for inspection and examination service, and certain hours for parent education, including consultations with parents whose children are in need of dental attention. This frequently requires the use of home visits. Lastly, she must plan time for teacher conferences, as it is through the teachers that much health information is taught in the classroom.

There are various methods of teaching dental hygiene to elementary school children; through posters and exhibits, work books

models, puppet shows, motion pictures and playlets. A group visit to a dental office where the dentist can explain some of his equipment to the children and also tell them how to care for their teeth will create a friendly attitude between the children and the dentist. An exhibit for the parents is an effort to impress upon them information concerning dental hygiene. Interesting exhibits, such as charts illustrating the structure of the teeth, proper foods including milk, fruit, vegetables, cod liver oil and sunshine, correct methods of brushing the teeth and how the dentist can help can be explained by the children to the parents. A playlet may be given by the children, dramatizing a visit to the dentist. With the aid of a mirror, cavities, fillings, and missing teeth can be charted.

In the secondary schools, a more thorough informational program on dental hygiene should be presented to all students so that they will assume responsibility in securing, maintaining and appreciating dental health.

Mouth examination of every child, by the dental hygiene teacher, should be made with the use of a mirror and an explorer. Any evidence of dental disease is charted by her at this time. Parents are encouraged to be present at the examination, so that the dental hygiene teacher will have an opportunity to discuss and explain the defects. Individual instruction as to the proper care of the mouth and diet is then given during the prophylaxis. In all public schools, all children's teeth should be examined semi-annually.

As previously stated, the dental hygiene program in New York State is under the supervision of the State Education Department. Consequently, the dental hygiene teacher and school dentist are responsible to the Board of Education and trustees. Salary of the dental hygiene teacher varies between $1500 and $1800 if she works full time throughout the year. The cost of her supplies each year will average from $200 to $300 per chair and are, in addition to equipment, furnished by the Board of Education. Her room, besides the equipment and supplies, should have health magazines, suggestions for posters, lesson outlines, oral hygiene reference books and charts available for use of the teachers. The charts should also be used to explain abnormalities to pupils and parents.

Where possible, parents should be invited to come to the school in order that they may receive a better understanding of the dental work carried on. However, should the various efforts of the dental hygiene teacher fail to secure parental cooperation, it is advisable to make home calls with the school nurse. This is necessary in se-

curing dental corrections, and must be done tactfully to make the parent realize that "she is working with the parent for the good of the child".

Through the efforts of the dental hygiene teacher, parental consent to corrective measures has been secured. Those who are able to consult the family dentist are urged to do so, but what can be done for those parents who are willing but unable to make financial provision for dental treatment? This problem has aroused much interest and dispute. The New York Welfare Law of 1929 states that medical and dental care should be provided for those families who are unable to pay for such services. The Judge of a Children's Court in that State has the power to order treatment in cases where parents are either unwilling or unable to provide for necessary treatment. Should the Board of Education appropriate funds for dental treatment, children of all families are entitled to treatment. Through such associations as the Welfare, Red Cross, and other interested groups, there is always help for the needy.

In Belmont, Massachusetts,[5] there is one very well equipped dental clinic in the Town Hall which serves the underprivileged pre-school and elementary school children of the public schools. Carious deciduous teeth and permanent six year molars are filled. The dental staff consists of two part-time dentists and two full-time dental hygienists. Children are selected from families unable to provide for dental care, and appointments are made through the principals of the schools. Cases are investigated as to financial status, and the reports submitted to the hygienists before any work is commenced. An adult must accompany the child to the clinic, and a charge of 50c is made to those families who can afford to pay. After the work is completed, the child and parent are given instruction in mouth hygiene, and the child placed on a six months' recall list.

In Bridgeport, Connecticut, and Rochester, New York, dental clinics are conducted by schools out of funds received from the city. Students from the Rochester Dental Dispensary, under supervision, clean, examine, and chart defects of the teeth for the elementary school children of the city. The charts are given to the school nurse. Graduated hygienists render a similar service to the children in the secondary schools. Treatment is provided at the Dental Dispensary for all students under 16 years of age whose parents do

5 "Dental Hygiene in the Belmont Public Schools" by Mary R. Morrison, Belmont, Mass. The Journal of the American Dental Hygienists' Association, January 1941, pp. 6-10.

not have the financial means for correction. Appointments are made through the principals of the schools, transportation is provided and a fee of five cents per visit is charged. The Dispensary is a George Eastman Foundation project.

Several years ago, when the county dental hygiene teacher cleaned and examined the teeth of the public school children in Greece, N. Y.,[6] it was noted that 90% of the children needed treatment. A large percentage of the parents could not pay for the correction. Through various organizations representing churches, P. T. A., political groups, and interested citizens, sufficient supplies, instruments, and equipment were purchased for the new Greece Dental Clinic. Each child pays 25 cents per treatment. The school district pays the balance needed in addition to the collection of fees to pay for the services of a dentist. The dental hygiene teacher cleans and closely examines the teeth, charting all caries for later reference by the dentist. She speaks to the parents regarding individual cases, if urgent, otherwise all oral defects are recorded on health cards and sent to parents. The results have been very favorable.

In Buffalo, the Health Department maintains eight staff dentists in school clinics besides the dental clinic at the Meyer Memorial Hospital. The financial status of all cases is investigated before treatment is begun.

Although the school dental hygiene program is still comparatively new, it has been in existence longer in the large city schools than in the rural areas. The dental hygiene teacher and the school dentist have the major responsibility for the health education in the cities, although the classroom teacher correlates a part in her curriculum. In the rural areas, the teacher must assume the major responsibility, as the dental hygiene teacher can spend only a short time at each school in the county. When she visits a school, her portable equipment is set up in an available room or the classroom, and each child's teeth are cleaned and defects charted. She renders individual instructions as to proper care and diet during this time. Parent education can be carried out through various societies and church organizations. A dental clinic is frequently established in a central location, and those needing attention are brought there.

A pre-school round up, although not compulsory, is paying

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6 "A School Dental Clinic" by G. E. Matthews and B. W. Kinsella, The Journal of the National Educational Association of the United States, Vol. 28, No. 8, November 1939, pp. 242-243.

dividends in several states. It is a yearly activity of the State Board of Health.[7] Letters are sent to the principal or teacher of every school, informing them when the physician, nurse and dental hygienist are expected. Parents whose children will enter school the following fall are notified. As this program is started in early spring, the purpose is to have many of the defects taken care of during the summer months. Previous experiences show the many unsanitary mouth conditions of the youngest children entering school—a large percentage of whom never have received any medical or dental attention before.

Much has been accomplished in the twenty-five years of the school dental hygiene program but the goal is not yet reached.

"No child should pass through life with a pathological or esthetic defect which can be prevented by timely treatment and care. The result will be better health and happier citizens".

Scarlet Fever Traced to Raw Milk,—An outbreak of approximately thirty cases of milkborne scarlet fever (six with the typical rash and the remainder without) occurred between April 6 and April 20 in a small community in Delaware county. All the cases developed among workers employed in a cheddar cheese plant in the community or among persons using milk obtained from the plant. No deaths have been reported thus far.

The cheese plant in question is a rather large one, receiving 150,000 pounds of milk daily. Of this amount, 49,000 pounds are supplied locally by 116 producers. The rest of the milk is obtained from a branch plant in a neighboring community which receives from 240 producers. The milk was made into cheddar cheese without prior pasteurization and some was also made into powdered milk. In addition, thirty cans of raw cream were sent daily to New York City. The cheese plant employees were permitted to help themselves to as much milk as they wished at the plant. While at work they usually drank milk abundantly, using a common tin dipper. They also took milk from the plant to their homes and several families in the vicinity also obtained milk from this source.

All of the milk now used in the plant is being pasteurized prior to the processing of the cheese.

Another case of locking the door after the horse is stolen. Health News, May 11, 1942, pp. 79-80, New York State Department of Health.

7 "The Pre-School Round-Up" by Margaret H. Jeffreys, Journal of the American Dental Hygienists' Association, January 1940, pp. 36-37.

THE SANITATION OF EATING AND DRINKING UTENSILS

A. PARKER HITCHENS, M.D.

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Recent outbreaks of measles, respiratory infections, and other communicable diseases along the Atlantic seaboard indicate the current need for greater-than-ever vigilance over every possible avenue of infection.

Public eating and drinking places where glasses and utensils may not be properly washed constitute a common meeting-place for these sources of numerous infections. Here may accumulate a vast pool of the germs or viruses that cause measles, influenza, diphtheria, pneumonia, scarlet fever, septic sore throat and tuberculosis. The organisms are deposited by some customers on the rims of drinking glasses and on spoons and forks, to be picked up later by other patrons.

Alert nurses, in the role of inspectors, could help prevent the further spread of infection along this route. They might easily train themselves to cast critical eyes over dish-washing habits practiced in the homes they visit, in school cafeterias, lunch rooms near schools, and in restaurants. They might also advise the owners of eating places, regarding sanitary practices, and educate the public to demand clean glasses and utensils.

Apathy concerning dishwashing is often met and must be overcome.

Andrew J. Krog, health officer of Plainfield, New Jersey, surveyed the soda fountains, restaurants, and luncheonettes of his town and found that, in the majority of them, dishes and utensils were washed in soapy, lukewarm water, then given a cold rinse after each use. But bartenders weren't so fussy. In bars, glasses were washed with soap and water *two or three times a week.* After each individual use they were doused in cold water and polished with a towel. The towel was washed every week whether it needed it or not! Bacterial counts of the rinse water in these bars looked like figures of Congressional appropriations. The report listed 11,000,000 bacteria per c.c. in one sample, 6,000,000 per c.c. in another, and so forth. Bacteria of the colon group, which shouldn't be in the rinse water at all if personal hygiene rules are observed by food handlers, were present in bulk—from 50,000 to 1,000,000 per c.c. in many bars.

It is true that we go on, year after year, eating cakes and pies on which flies may have trespassed, drinking from murky, germ-laden glasses, and otherwise defying all the principles of sanitation, and we do not always come down with respiratory or intestinal infections. But people *do* get these diseases. Saliva-borne infections, such as pneumonia, tuberculosis, influenza, scarlet fever, and measles, are responsible directly or indirectly for from 25 to 45 per cent of our mortality. How much of this illness might be traced to the "soda fountain germ exchange" it is difficult to estimate. But certainly it is folly to minimize, too much, the possible potency of a clump of tubercle bacilli, poised upon the rim of a glass. That tubercle bacilli do remain on glasses and utensils was determined at the Army Medical Center, Washington, D. C., where bacilli were isolated from spoons previously used by persons with active cases of this disease. Other organisms, including those of the coliform group and those causing respiratory infections, have been found by several investigators in rinse and wash water, and on glasses and eating utensils of eating places.

Extensive research to determine the relationship of dishwashing techniques to cases of influenza was conducted by Colonel James G. Cumming, now Chief of the Bureau of Preventable Diseases, Washington, D. C., at Army camps during the influenza epidemic of 1919. The troops observed totaled 66,076 men. The men in one section followed the old Army routine of dipping their mess gear in a G. I. can of water that should have been hot. The dishes used by the rest of the soldiers were collected and washed together in the company kitchen. In the first group, 252 per 1,000 men came down with influenza, while in the latter group, only 51.1 per 1,000 men were affected.

To Cumming, if not to all health workers, the road to be taken is plainly visible. We are faced, he pointed out recently, with the necessity for a routine epidemiological procedure. We control typhoid by purifying water and pasteurizing milk. We must now "block the avenues of distribution of saliva-borne diseases. . . . It is apparent that if an organism is in the mouth it may be transferred on a utensil that is mouthed, just as one transfers a culture from one test tube to another by a platinum loop. The eating utensil may serve as the platinum loop."

The need for control of insanitary practices in public eating places has been admitted for years. Nearly every state, town or county has laws or ordinances requiring single service or the use of

certain sanitary procedures, and nurses and other health workers will do well to familiarize themselves with the regulations pertaining to their districts.

The nurse can make a valuable contribution to her community by insisting on a workable ordinance, in conjunction with her educational maneuvers. She can emphasize that the important objective is bacterial cleanliness—not, necessarily, the machine-like observance of stringent rules. As an example of this common-sense approach, I submit the recently amended New York State Sanitary Code. All regulations concerning methods of dishwashing have been stricken out. The Code simply states that, except where single service is used, the desired objective is less than 100 bacteria per utensil and no coliform bacteria. *How* this goal is to be achieved is a problem which must be solved by the local health officer in cooperation with the individual operators, with ample consideration given to the operators' facilities, equipment, and resources. I believe it is the job of the local health officer to assume the initiative in such matters.

There are almost as many methods of washing dishes as there are techniques for making the bacterial count of glasses and utensils. Within the past few years, attempts have been made to formulate standard, effective methods and tests so that procedures all over the country will be efficient and uniform. Such studies are constantly being made and reviewed by the subcommittee on Standard Methods for the Examination of Dish Washing Devices of the Committee on Research and Standards of the American Public Health Association, of which I am chairman, and by other Association committees. Our subcommittee on Standard Methods has proposed to the Association the following standard procedures:

For Hand Washing:

1. Soap or other detergents should be used to remove grease.
2. Temperature of the wash water should be from 110-120 degrees. This is about as hot as can be borne by the hands.
3. The wash water should be changed frequently. It should never contain more than 50,000 organisms per c.c., nor gross food particles.
4. Dishes and utensils should then be placed in
   a. A tank of water with a temperature of not less than 170 degrees F., the dishes and utensils to remain in the tank not less than one minute.
   b. A chlorine bath. The chlorine content of the solution

should be from 50 to 200 p.p.m. The dishes and utensils may then be placed immediately on a rack or rinsed in running water.

Recent studies indicate that provision should also be made for the acceptance of additional methods or disinfectants that can be approved by the health officer.

For Machine Washing:

1. The temperature of the wash water should be 170 degrees F., or more.
2. Soap or other detergents should be used to remove grease.
3. Rinse water should provide sufficient fresh water so the soapy water will be frequently changed.

The necessity for these practices is obviated only if single-service paper cups and utensils are used. Paper cups and utensils, which are used once and thrown away, should be insisted upon at all lunch counters, eating stands, and other places where adequate facilities for dish-washing are not available. In the long run these are less expensive than adequately disinfected glasses and utensils. In addition, injury claims by workers who have been cut on broken glasses are eliminated. The nurse visiting people suffering from infectious diseases in private homes will find that the compliance of the family will be greatly accelerated if she teaches the use of paper cups and dishes for the patient. Boiling the patient's dishes and glasses thus becomes unnecessary.

To be effective, dish-washing techniques should include:

1. Thorough scraping of dishes before washing. This not only reduces the soil load but conserves detergent powder. Prompt washing, after soiling, helps too. Moist proteins, such as eggs and potatoes, are easily washed off in 30 seconds when washed in water at a temperature of from 140 to 190 degrees F.

2. Dishes and utensils should be properly placed in machines. They should not be crowded together. Bowls and glasses should be placed on edge to prevent an accumulation of water.

3. Sprays should have sufficient pressure. To prevent clogging with soil, nozzles and rinse lines should be cleansed daily. The interior of tanks and strainers should be cleaned after every use.

4. Water should be hot enough to kill bacteria. In single and multiple tank conveyor machines, a 40-second wash in water of not less than 165 degrees F. should be followed by a 20-second rinse in water of not less than 180 degrees F. In intermittent single tank machines, a 60-second wash, in water of not less than 150 degrees

F. should be followed by a 10-second rinse in water of not less than 180 degrees F. Utensils washed at these temperatures, over a period of a year, were always bacteriologically clean.

Detergents are being given increased attention of late. In the laboratories of the New York State Department of Health, at Albany, a novel method for evaluating the effectiveness of various detergents has been devised. Slides are dipped in a soil emulsion. The emulsion is formed from particles of peanut butter, egg, butter, mashed potatoes, bacon grease—"everything is in it," explains F. W. Gilcreas, laboratory technician, "except the kitchen sink." The slides are then washed, and passed in front of an electric eye. The amount of light transmitted through the glass slides is measured. Thirty-six detergents have been studied so far, and officials hope, eventually, to publish a list of acceptable detergents. At this point, the investigators have concluded:

1. Ordinary soaps are effective in soft water.

2. Alkali phosphates and silicates emulsify and break up substances into fine particles, but have not sufficient wetting and dispersing capacity to be used alone.

3. Alkalies are ineffective.

4. Sodium hexametaphosphate is extremely active as a dispersing and softening agent and in preventing film, but otherwise has no detergent properties.

5. Sulfated alcohols have marked wetting action and emulsify and therefore effectively remove oily substances. They are less active with solids and non-greasy substances.

The ideal detergent is described as "a substance or compound soluble in water, which at a temperature of 120 degrees F. would remove all aypes and character of soiling material in a short time, produce a free-rinsing surface, prevent film, and function effectively in waters of varying hardness."

Food handlers themselves must be watched, for they provide a "variable human factor" which is often troublesome. An expensive dish-washing machine is no better than a battered dishpan if not correctly used. Once I visited the kitchen of a "first-rate hotel" and saw there a dish-washing machine that was one of the best available of a standard type; then I decided to make a closer inspection. I placed my hand back of the canvas curtain, cautiously, for I was not anxious to be scalded. I was surprised to discover the water was scarcely warm. The operator explained, somewhat insolently, "Of course the water ain't hot . . . I just lit the gas!" In an increas-

ing number of localities attempts are being made to control the frequently destructive habits of the food handler by educating him regarding better, more sanitary practices. Another solution is one I hit upon after witnessing the scene described above. Why, I wondered, cannot dish-washing machines be made with such automatic controls that intelligence and care in operation are not prime requisites? I envisioned a machine that would not operate unless the temperature of the wash and rinse waters was sufficiently high. My proposals, regarding such a machine, met with lackadaisical response in some quarters but one inventor of a drinking-glass washing machine saw, at once, the value of such a device. He told me that, after I had submitted the idea to him, he "stayed awake all night while he worked out details of the mechanism." As a result of this inventor's fine cooperation, we now have an apparatus for washing glasses that is fool proof. Not long after the development of this apparatus, manufacturers of dish-washing machines also evidenced interest in automatic controls, and began to produce equally dependable machines for washing dishes. These automatically controlled dish and glass washing machines cannot be recommended too highly.

The speed with which dish-washing improvements are developed will hinge upon the extent of the public's demands. The nurse can help, immeasurably, in teaching how to wash dishes properly in the home, and she should not let one opportunity go by where this point can be helpfully stressed. She can also inspire a public desire for cleanliness in eating places, appealing to the patriotic fervor of citizens, and emphasizing that sickness today not only harms the individual but, in this national emergency, may affect the safety of the nation as well. The habits of cleanliness, thus gained, may then endure in less troublous times.

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THE TRAINING AND QUALIFICATIONS OF HEALTH AND PHYSICAL EDUCATION INSTRUCTORS

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Education in colleges undergoes continuous changes influenced by trends economic-political, and trends in population, nature of leisure time and propaganda. Any college which does not continuously revise its program is certain to remain institutionalized, formalized, crystallized, and ineffective for some of the principles for which colleges are thought to exist.[1]

Most recent trend in choosing teachers for training is a continuous process beginning before entrance to college, up to the time the student is recommended for a teaching credential.[2] The selection may take place:

1. When student applies for admission.
2. When he seeks permission to do student teaching.
3. When he applies for recommendation for a teaching credential.

The best method is a cumulative record, because a prospective teacher in physical education, if she begins to fail to measure up to standard, may be diverted to other fields in which she may find success before she is termed a failure with consequent injurious lowering of her own self-esteem.

Various methods of choosing candidates have been devised. A combination of the following seems to be very desirable:

1. Minimum age—18 years; maximum age, if no teaching position has been held—35 years.[3]
2. Application blank data of high school, showing—
   a. Completion of 16 required units, probable distribution as follows:[4]
      (1) Constants—English, 4 units; American History, 1 unit; Science, 1 unit; Social Studies in the 9th year, 1 unit.
      (2) Major sequence—Physics, 1 unit; Chemistry, 1 unit; Biology, 1 unit; Major sequence—2 units.
      (3) Electives—4 units.
   b. Minimum high school average of 75% in Regents[5] and 80% in school marks if regents examinations are not given.
   c. Evaluation of the character of the student by at least three adults, of whom one should be the physical education instructor.
      (1) Proof of good character.
      (2) Personality.

1 "College Instruction and Changes and Trends in American Life" from "The Study of College Instruction," Chicago, Ill. The U. of Chicago Press, 1939. Harl R. Douglass and Homer P. Rainey.
2 P. M. Frederick, "Administrative Aids in the Selection of Candidates", Journal of Health and Physical Education, Vol. XII, No. 6, June 1941, p. 357.
3 "Preliminary Report of the Committee on Evaluation of Teacher Training Institutions Preparing Physical Education Teachers".
4 1941-2 Bulletin, State Normal and Training School, Cortland, N. Y.
5 Board of Regents Examinations, State Department of Education, N. Y.

3. Proof of citizenship.
4. Intelligence test, showing I.Q. of 100 or over. The interview type of test such as the Stanford-Benet, is preferred.
5. Health examination showing a status as follows:[6]
   a. Skin and body.
      (1) Free from infection.
      (2) Free from grossly unsightly blemishes.
      (3) No marked deformities.
      (4) Weight within 20% if underweight. Gross overweight will disqualify.
   b. Voice.
      (1) Free from impediments of speech.
      (2) Free from any markedly unnatural tone.
   c. Breath,—disqualified if
      (1) Fetid breath.
      (2) Chronic atrophic rhinitis.
   d. Teeth.
      (1) Must not show neglected carious teeth or unhealthy gums.
   e. Eyes.
      (1) Free from infection, muscular defects, as squint or nystagmus, or cosmetic defects caused by injury or infection.
      (2) Vision must be at least 20/30, with or without glasses.
   f. Ears.
      (1) Free from infection.
      (2) Hearing not below 10/20 in either ear.
   g. Throat.
      (1) Healthy appearance.
      (2) Free from chronically infected tonsils.
   h. Neck—disqualifying conditions are:
   i. Tuberculosis of cervical glands.
      (2) Discharging sinuses, thyroid enlargements with signs of thyrotoxis.
   i. Chest,—Causes for rejection—
      (1) Tuberculosis—a positive sputum within two years.
      (2) Chronic bronchitis.
      (3) Asthma, if attacks are frequent and severe.
      (4) Pleurisy with effusion.
   j. Heart—causes for rejection—
      (1) Any organic lesion with decompensation.
      (2) Tachycardia—pulse rate above 100 after 10 minutes recumbency taken on three successive occasions.
      (3) Aneurysm, hypertensive cardio-vascular diseases.
      (4) Blood pressure not to exceed 150 m.m. systolic on 3 successive occasions.
   k. Gastro-intestinal—causes for rejection—
      (1) Grossly enlarged liver or spleen.
      (2) Hemorrhoids with symptoms.
      (3) Known typhoid carriers.
      (4) Inguinal or femoral hernia unless truss is worn.
   l. Genito-Urinary—causes for rejection—
      (1) Nephritis, cystitis, urethritis.
      (2) Dysmenorrhea requiring absence from duty with every period.
   m. Nervous system—disqualified if—
      (1) Organic lesions of the central nervous system.
      (2) Pulse rate exceeding 100 after 10 minutes of recumbency.
      (3) Any tic or habit spasm.
      (4) History within one year of hysteria or nervous breakdown.
      (5) Epilepsy.
      (6) Evidence of emotional or mental instability.

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6 Ibid.

n. Posture.
(1) Must have fairly good posture.

The minimum number of health examinations should be:

1. At the time of entrance to institutions.
2. Prior to acceptance in teacher-training curriculum.
3. Prior to graduation, and as a candidate for a recommendation for a teaching credential.

6. Personal interview by a college staff for a complete picture of person's appearance, voice, use of English language, poise, social grace, and like factors.
   a. A personality test such as "Bell Adjustment Inventory", "Bernrenter Personality", of the "California Test of Personality" may be used if time and facilities permit.[7]

Various qualifications should be met by matriculation. Administrators seek and expect various qualities in the physical education teachers they employ. This basis may be used as a criteria, as suggested by a Minnesota census among administrators:[8]

1. Of prime importance.
   a. Understanding of physical abilities and limitation of pupils.
   b. Personal integrity and sincerity.
   c. Moral influence over pupils.
   d. Willingness to cooperate with superiors and associates.
   e. Personal health and vigor.
   f. Knowledge and understanding of the nature of pupils.
   g. Initiative, self-reliance, and independence.
2. Of considerable importance.
   a. Ability to care for routine matters, keep records, make reports.
   b. High grade of scholarship.
   c. Interest in community affairs.
   d. Enriched background of academic training.
   e. Administrative ability.

In order to teach physical education in an elementary school, completion of a four-year course in a duly accredited college is the approved training. A B.S. in Physical Education is desirable.

The New York State law requiring a Master's Degree for appointment as a high school physical education teacher is fast approaching.

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7 Preliminary Report of the Committee on the Evaluation of Teacher Training Institutions Preparing Physical Education Teachers.

8 Graybeal, "A Consideration of Qualities Used by Administrators in Judging Effective Teachers of Physical Education in Minnesota", Research Quarterly, Am. Assn. for Health, Physical Education, and Recreation. Vol. XII, No. 4, Dec. 1941, pp. 741-4.

The desirable amount of educational preparation may be summarized accordingly:[9]

1st yr.	Hrs.	2nd yr.	Hrs.	3rd yr.	Hrs.	4th yr.	Hrs.
English	6	Pub. Speaking	2	Sociology	3	Ed. Psychol.	3
History	2	History	2	History of Ed.	3	Prin. Sec. Ed.	3
Biology	5	Economics	3	Elem. Statistics	3	Ed. Tests & Meas.	3
Chemistry	5	Anatomy	3	Kinesiology	2	Corrective Phys. Ed.	2
Physics	3	Physiology	6	Theory of Play	2	Prin. Phys. Ed.	2
Hygiene	3	Psychology	3	Growth & Develop.	3	Phys. Exams.	2
Activities	2	Activities	2	Activities	1	Activities	1
Introduction to Phys. Ed.	2	Hist. of P. Ed.	2	Psychol. of Activity	2	Health Protection	2
				Pol. Science	3	Practice Teaching	
Totals	28 hrs.		23 hrs.		22 hrs.		18 hrs.

A sample pattern classifying activities and subjects under three heading as the General, Technical, and Professional, such as that at Cortland may be used. Their classification follows:

1. General—61 semester hours, including:
   a. English—composition; speech; contemporary literature.
   b. History—contemporary civilization; American history; government.
   c. Fine arts—essentials in art and music.
   d. Science—anatomy; hygiene personal, community, and child; physiology; physiology of exercise; kinesiology; bio-chemistry.
2. Technical—physical education—43 semester hours.
   a. History and principles of physical education, health, and recreation.
   b. Organization, administration and supervision of health, psysical education, and recreation.
   c. Camp administration—desirable at the college camp.
   d. Physical education for atypical children.
   e. Safety; first aid.
   f. Physical education tests and measurements.
   g. Community recreation.
   h. Physical education, skills, techniques, etc.
3. Professional—24 semester hours.
   a. Child development.
   b. Physical education methods and materials.
   c. Hygiene methods and materials.
   d. Practice teaching.

Pennsylvania State College has an excellent set-up for giving teachers in training practical experience. It is valuable because it is a continuous contact with every type of situation to which a physical education teacher may be exposed.[10]

9 Op. cit:[7]
10 L. M. Jones, "A Philosophy of Teacher Education", J. of H. & P. E., Vol. XII, No. 7, Sept. 1941, pp. 409-9, 432-4.

1. All freshmen and sophomores who major in Health and Physical Education, assist in the regular service classes which are required of all college students.
2. Junior year, they serve one period weekly in observation of the classes in the local schools under the supervision of members of the college staff.
3. Senior year, they participate more actively in the public school classes for one period weekly, which serves to induct them more intimately into the school program.
   a. Practice teaching.
   b. Have charge of physical education in elementary school or local borough.

The current trends in training of teachers are summarized as follows: by Ernest M. Best, President of Springfield College:[11]

1. Trend toward more thorough academic training and better scholarship.
2. Trend toward broader academic training.
3. Trend toward individualized education through guidance.
4. Trend toward more and better health and physical education.
5. Trend toward cultural recreation—fine arts, handicrafts, promotion of social dances, drama, music, folk, and other dancing.
6. Trend toward the understanding and direction of the democratic process.
7. Trend toward the integration of general and professional training.
8. Trend toward more rigorous selection of teacher education students.

The need, by the public, of training in First Aid has set up a crying need for instructors qualified by the American Red Cross. Because of the ideal background of basic sciences each physical educator has, coupled with an understanding of the philosophy, methods, and principles of teaching, they are best fitted to become understanding, intelligent, and excellent instructors. Should this trend spread, all major students in physical education will have to meet the requirement for instructors in First Aid set up by the American Red Cross and qualify.

Other trends will inevitably follow, some as temporary emergency measures, some as permanent parts of the curriculum. Physical educators, owe it to themselves and to their profession to keep up with these trends and to give to the utmost of their service.

11 E. M. Best, "Trends in Teacher Education", J. of H. & P. E., Vol. XI, No. 10, Dec. 1940, pp. 587-8, 633-34.

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EDITORIALS

The school year 1942-43 has begun. Newspaper "experts" and "ready letter writers" hammer educators, armed forces, and government agents with half baked advice, based usually on insufficient information, inadequate training or experience in the field they try to discuss, and loose thinking as to the implications or results of their proposals.

All sorts of wild schemes, some of them fostered by governmental bureaus, have been proposed to build up the nation's health and the strength of our soldiers, sailors and other citizens for the war effort. There is no panacea for health and strength. Improvement comes only through definite betterment in diet, in protection from communicable disease, in controlled allotments of time for sleep, rest, and recreation, and in precisely led and supervised physical activities, intensive enough, and long enough continued, and at sufficiently regular and frequent intervals to build up strength, stamina, and persistency. Such programs can be organized and led only by persons who have had long and intimate training and experience in the field of health and scientific physical education. They cannot safely be entrusted to persons whose major—perhaps only —qualification is expertness in some one game or sport, or worse, to one whose greatest value seems to be the ability to get front page newspaper publicity.

There are many fundamentals in anatomy, physiology, and healthful procedures and living, on which patriotic, safe, and successful programs must rest. Without knowledge and use of these fundamentals, no changing techniques or publicity seeking activities can avail. C. H. K.

The school year we are entering will be particularly strenuous and exhausting to teachers and school administrators.

Owing to a growing scarcity of available teachers because of the calls to military and naval service and because of the appeal of high wages in industry, many teachers have been drawn away from the schools. Larger classes, perhaps more classes, sometimes even in a new subject, will be the war service of those remaining.

Moreover, many of these teachers are carrying a heavy load of that which—perhaps more frequently than any other thing—causes mental and physical breakdown; worry. To their worry over personal security is added worry about the health and safety of dear ones in the armed services, perhaps at a station in a region from which it is impossible to get frequent or accurate information.

It devolves upon the health and physical education services to render every possible help and aid to these teachers.

Arrangements should be made for advice to teachers to be given both by physicians and by nurses. The war time routine of teachers as it affects health often is wretched. Their diet frequently is faulty both in food selection and in regularity of eating. When the set-up is such—as it is in some state normal schools—that some pupils are permitted or perhaps forced by lack of proper school eating facilities to be "basket livers" bringing sufficient quantities of food from home each week to last them until the week end, we cannot expect the graduates of these schools to have any true concept of proper diet. Certainly few of them have formed any proper eating or living habits.

Dental advice, not free treatment, also should be a part of the health service rendered to teachers by the school health staff.

The responsibility of the physical education teachers also is great. School facilities—gymnasiums, play fields, swimming pools, and the like—should be made available, without charge, to teachers, and the physical education staff should help organize and even teach physical recreation groups.

The plea that we have no time for these extra services is without force. Our men in the Army, Navy, Marines, and Coast Guard, in the presence of the enemy, do not quit at the ringing of a bell, they do not have quiet and peaceful sleep, they often do not get hot, sufficient food of their own choosing, nor do they have the cheering support of the family circle.

Upon the school health and physical education services, therefore, falls a large part of the burden of maintaining mental and physical health and a resulting high standard of morale among

both teachers and children.

If the morale of these groups breaks, the morale of the public will soon "come tumbling after." No army or navy, however large, however well trained, or however well armed and led can win the war if the morale of the "folks at home" breaks. C. H. K.

ABSTRACTS

The School Nurse and Civilian Defense,—School nurses all over the country are asking what part they should play in civilian defense. There are opportunities for her to discover nurses who have not returned their national survey questionnaires or even nurses who did not receive them. She goes into homes which others do not reach, under circumstances that make it easy for her to discover whether there is anyone in the family who is a graduate nurse. She, perhaps more than any other nurse, shares with the local league of nursing education responsibility for recruiting a sufficient number of the very best type of candidates for schools of nursing.

The public health nurse working in the schools is frequently well equipped to assist in teaching first aid and home nursing classes. She may give valuable service in organization of classes, in securing rooms and equipment, in finding nurses to do the teaching, and in helping less well prepared nurses with their teaching. Perhaps due to the conspicuous position and easy accessibility of the school nurse in the community, she is sometimes called upon for more service than it is wise for her to give.

The experience in England has shown that the nurse's services in the schools must be expanded, not contracted, under modern civilian war conditions. It is evident in this country, as in England, that the school nurse should not accept an assignment to a casualty station or first-aid post during school hours. It is also questionable whether she should accept one for out-of-school time because she may be needed to help with emergencies in connection with the school itself.

While the vital health service duties of the nurse must not be sacrificed to other demands, it is possible and necessary to rearrange programs, change emphases, and utilize auxiliary assistance so that essential needs can be met and additional or enriched services may be possible to meet new problems.

Allocation of duties to the nurse or teacher should be made now, as at all times, on the basis of who can do them most effectively from the standpoint of meeting the child's needs. Of the

activities ordinarily carried on by the nurse in the school, there are some involving a minimum of nursing skill and judgment which can be assigned to volunteer or clerical service without requiring an impractical amount of training or supervision by the nurse.

While it might appear that a volunteer could schedule examinations, an intimate knowledge of the school system is required for efficient scheduling, which makes this undesirable as a volunteer activity in most instances. The educational possibilities of weighing and measuring in connection with the periodic physical examination make these procedures so important that the teacher or nurse should do them if possible. If, however, they are done only for purposes of making a record, a volunteer can do them just as well. The psychological factors involved in doing the ocular muscle and color perception tests make those procedures the responsibility of the nurse and teacher. The presence of the teacher and nurse at the examination is important beyond their function of assisting the physician or chaperoning at the examination; they each have much to give to the examination and to get from it.

Increased emphasis on nutrition is a feature of the defense program which should function in and through the school. Until some more objective tests and measurements of nutritional conditions are available for use in the school examinations, the physician's evaluation of nutritional status based on clinical signs must be supplemented by observation of symptoms and behavior, by history, and perhaps most important of all, by information regarding the diet. Information regarding the lack of sufficient food, use of the wrong foods, or poor eating habits—especially the omission of breakfast or lunch—is well worth gathering, recording, summarizing, and doing something about.

Anything which can be done to reduce undue fatigue of children is a contribution to improved nutrition. There is a disturbing amount of fatigue among so-called normal children, which is intensified at the present time by the general tension and by loss of sleep due to the failure to adjust to the change to daylight time. The fact that children adjust quite easily to changes in schedule when they go to a hospital or to camp indicates that adjustment is more a matter of environmental control than of some unchangeable factor in the child. The nurse can help parents and children to meet this problem.

War conditions may bring new diseases within our horizon. We may have to learn about tropical diseases or other communicable diseases which are new in this part of the world. Even defi-

ciency diseases may appear in parts of our country where they have never been seen before. Physicians are already taking cognizance of these possibilities, and nurses also should be on the alert.

Increased attention must be given to the health of older pupils. When public health nursing service in the schools is inadequate there is a tendency to neglect the older children in favor of the younger. In fact many public health authorities have urged this emphasis if some sacrifice must be made. Others have suggested the need for a re-evaluation of this practice. Certainly at this time, when youth are needed at an early age for war industries or military service, the need for greater attention to their health is obvious.

Finally, emphasis should be placed on the importance of close coordination of all community health services, including the school services. Community planning—always essential to economical and effective health work—is now imperative in the light of probable decreased personnel and increased needs. The work of the school nurse should be a part of a community plan in which all nursing services are closely dovetailed together in order to give family health services. More than ever, if she is a nurse in a specialized service, she has a responsibility for seeing the health needs of the family of each child under her supervision; for working out carefully planned relationships so that those needs will be met promptly and effectively. By Marie Swanson, R.N., Public Health Nursing, April, 1942, page 203. Abstracted by Gertrude E. Cromwell.

* * * * *

Sick Leave and Related Problems,—When the promotion of teacher health is viewed broadly, practically all the topics discussed in this bulletin have a bearing on the subject. This section, however, is limited to topics directly associated with physical health or illness of teachers. It reports on the extent of use of several familiar types of health service to teachers; gives information on the amount and type of sick leave granted; and includes a brief section on the service of substitute teachers, whose employment is made necessary largely because of the illness of teachers.

Health Services to Teachers,—The questionnaire on which this report is based included for checking a brief list of health services to teachers known to be provided by some boards of education, and asked that other similar services be reported.

None of the topics listed was reported by as many as half of the school systems reporting. Mentioned most often was "services of school nurse," reported by 45 percent of the cities. Official co-

operation in maintaining group hospitalization or group health insurance was reported by more than a third of the cities.

The provision of thorough physical examinations of teachers in service, without charge to the teacher, was reported by 16 percent of the cities. A number of systems, 13 percent in all, reported that teachers may receive free advisory services from the school physician.

Amount and Nature of Sick Leave,—A reasonable sick-leave policy, properly safeguarded against abuse, places the school board in the position of a fair employer who is responsive to the human element in the teacher's relation to his profession. Teacher morale and efficiency are strengthened by knowing that a few days of necessary absence will not be penalized by salary deduction, and the health of both pupils and teacher is served by the fact that the teacher remains out of the classroom for the brief period that may be necessary to prevent some minor ailment in the contagious disease category from developing into a serious illness.

The practice of granting sick leaves is even more prevalent in private employment than in the public service. A report published in 1937, covering salaried employes in 427 industrial and financial companies, showed that only seven companies, or less than 2 percent, were not granting at least some sick leave with pay. More than half of the companies granting leave reported that there was no fixed limit on the length of absence, but for those reporting a definite policy the median was two weeks of absence with full pay.

Ninety-three percent of the city school systems grant at least a few days of sick leave with full or part pay. Only in cities of 2,500-5,000 population do as many as 10 percent of the cities grant no sick leave at all.

When compared with similar figures for the year 1930-31, it is seen that during the ten-year interval there has been a slight increase in the percent of cities granting sick leave. For all cities combined, the figure was 90 percent in 1930-31, whereas it was 93 percent in 1940-41. There has been a somewhat greater increase in the percent of cities granting sick leave with full pay, from 68 percent in 1930-31 to 78 percent in 1940-41.

The past ten years have brought a great increase in the number of cities providing cumulative sick leave. In 1930-31, only 14 percent of the cities reported cumulative sick leave; by 1940-41, the figure had grown to 33 percent. Nearly half of the cities of over 100,000 population make this provision, and more than a fourth of those in the 2,500-5,000 population group.

The study of teacher health published by the NEA Department of Classroom Teachers in 1938 called attention to the urgent need for more generous sick-leave arrangements but expressed no preference for any one plan. National Education Association Research Bulletin, May, 1942, p. 99. Abstracted by C. H. Keene, M.D.

* * * * *

Values in Re-immunization Against Diphtheria, — Volk and Bunney made observations on the re-immunization of 808 children, most of whom had first been immunized at the ages of 5, 6, or 7 years, and re-immunized from 7 to 11 years of age. Blood antitoxin titration tests were used to determine immunity status and the immunological response. Antitoxin blood content was measured at the time of re-immunization injections; 432 or 53 per cent had less than 0.001 per ml., 376 or 47 per cent had more than this amount. Of those with less than 0.001 unit antitoxin, a significant antigenic response was obtained with as little as 0.1 ml. of either fluid or alum-precipitated toxoid. Response to a single injection of alum-precipitated toxoid was slightly better than to a single injection of fluid toxoid. In comparing the response of two groups in which each had a beginning titre of less than 0.001 unit per ml., but in which one had been previously immunized and the other had not, the degree of response was greater and the rate of response more rapid for those previously immunized. No significant difference was observed among children who had been re-immunized in less than four years, and more than four years. No general allergic reactions were observed during the course of this study. It was, therefore, felt that re-immunization of school children against diphtheria constitutes a safe and desirable procedure for diphtheria control. "Widespread use of such a procedure should approach complete eradication of diphtheria." Reimmunization Against Diphtheria of Previously Immunized Children. Vladmir K. Volk, M.D., and William Edward Bunney, Ph.D., County Health Commissioner of Saginaw County, Mich, and Former Associate Director, Bureau of Laboratories, State Department of Health, Lansing, Mich. American Journal of Public Health, Vol 32, No. 7, July 1942. Abstracted by Dorothy McDonald, M.D.

* * * * *

Response to Diphtheria Immunizing Agents,—During the years 1936 to 1940 Volk and Bunney tested the antitoxin response of children to several diphtheria immunization procedures. Antitoxin was measured by blood serum titration only. The subjects of the study were 2487 children from rural schools in Saginaw County, Michigan, of which 65.9 per cent were from 6 to 10 years of age, and 22.3 per cent in the pre-school age group. The diphtheria rate in the community was low during this period. The carrier rate was

also low, as established by frequent surveys with throat cultures from school children, taken from time to time during the study. It was felt that under these conditions a satisfactory estimate of the antigenic effect of diphtheria immunizing agents could be obtained. Different groups were immunized with: one injection of fluid toxoid, two injections of fluid toxoid three weeks apart, three injections of fluid toxoid three weeks apart, one injection of alum precipitated toxoid, and two injections of alum precipitated toxoid three weeks apart. In selected groups, blood antitoxin titre was measured for 0.001 unit or more, 0.01 unit or more, and 0.1 unit or more at four and ten days, and at four, twelve, twenty-four, thirty-six, forty-eight, and sixty months. Also, number and percent showing more than 0.001 units per ml. was established at four and twelve months after immunization. Two injections of alum precipitated toxoid or three injections of fluid toxoid at three week intervals produced the highest and most lasting antitoxic response. One injection of alum precipitated toxoid was superior to two injections of fluid toxoid. The authors point out that this study established only the antitoxin response produced by the selected methods, and does not necessarily point to the method of choice for immunizations by public health agencies. There are other factors, such as cost and ease of administration, which may indicate the selection of a method better able to raise the level of immunity in the community even though the individual response may be less satisfactory. Diphtheria Immunization with Fluid Toxoid and Alum-Precipitated Toxoid, Vladimir K. Volk, M.D., and William Edward Bunney, Ph.D., County Health Commissioner of Saginaw, Mich., and Former Associate Director, Bureau of Laboratories, State Department of Health, Lansing, Mich., American Journal of Public Health, Vol. 32, No. 7, July 1942. Abstracted by Dorothy McDonald, M.D.

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Heart Disease in School Children,—The medical problems of rheumatic children are best considered in the four stages of the infection. Education procedures will vary, depending entirely on the physical condition of the child.

1. The child with active, acute rheumatic infection: this child should be confined to bed, if possible in a general hospital. All schooling should cease until this stage has abated. Its duration is variable, but it usually lasts two to ten weeks.

2. A subacute or chronic stage: often lasting for several months, in which the child should be in a convalescent home or quiet in his own or a foster home. During this stage bed-side teaching may be feasible in some cases.

3. A recovered or quiescent stage: during which there is a lia-

bility to recurrence of rheumatic fever especially if the child contracts hemolytic streptococcal infections of the upper respiratory passages. Convalescence should be prolonged to include this period which usually extends for a minimum of six months, and in a few instances for two or three years. In this period these children should not be permitted to attend school, but the use of home teachers or classes at convalescent institutions are of value. This teaching, combined with occupational therapy as a recreation and a stimulant to creative work, should promote the child's return to a normal life. It is not until the child is definitely in this stage that he should be permitted to attend public school. It is then possible to determine what, if any, are the permanent effects of the rheumatic fever on his heart. In children, physical exertion is not a significant factor in the production of heart failure, while in the adult with heart disease it is probably the most frequent cause of cardiac breakdown. Exercise and physical exertion which do not overtax the heart, improve the physical fitness of cardiac children. Once these children reach the inactive stage their greatest liability is to suffer recurrences of rheumatic fever after certain acute respiratory infections. Journal of Exceptional Children, April, 1942, Vol. 8, No. 7, p. 209. Abstracted by C. H. Keene.

NOTE

X-Ray Films,—"The Tuberculosis Committee of the Philadelphia County Medical Society has been asked by the board of directors of the society to give an opinion concerning the value of the 35mm. film and of its use in tuberculosis surveys," says Dr. A. J. Cohen in a recent issue of *Weekly Roster and Medical Digest.*

"At the last meeting of the committee this very interesting and important subject was thoroughly discussed and the unanimous conclusion was that for mass surveys the 35 mm. fluorophotograph is the most economical method now in use for screening out suspects," Dr. Cohen said.

"It has very little value as a diagnostic procedure. It is not as reliable as the 4x5" for spotting minimal lesions, but it is cheaper. It is the considered opinion of authoritative and experienced roentgenologists that for purpose of diagnosis neither the 35 mm. fluorophotograph, nor the 4x5" film, can be substituted for the 14x17" celluloid film."

The National Tuberculosis Association does not necessarily endorse the preceding viewpoint. It does encourage, however, other

medical societies to express their opinions on the reliability of various X-ray methods.—KE. Bulletin, National Tuberculosis Association, Feb. 1942, p. 18.

REVIEW

"Solving School Health Problems—The Astoria Demonstration Study," *Dorothy B. Nyswander, Ph.D.*, The Commonwealth Fund, New York, 1942; pages 377, price $2.00.

"Presented in this volume are the outcomes and details of a four-year intensive study of school health service in New York City, carried on from July, 1936, to June, 1940." This study was the culmination of a number of studies conducted during the last fifteen years which bear a definite relation to each other. In fact, this volume, written by Dorothy B. Nyswander, Ph.D., Director of the Study, is the report on it. It is really an effort to find out "what is the matter with school health work", and it makes suggestions for the development of better procedures which thereby might have more enthusiastic support from health officials, educators, parents, and community.

Throughout, the emphasis is on the fact that what is needed is the thoughtful consideration by school personnel, by the school nurse, and school physician of each child, rather than the attitude of looking on each child as simply another case to be run through the mill as expeditiously as possible.

Repeatedly, it emphasizes the need of stimulating teachers, school administrators, and parents to do something about the conditions found on physical examination, to sell the idea that school health work is an educational procedure, not merely a statistical one, although the need of more accurate keeping of records, so that a more honest report of conditions may be possible, is made prominent.

After discussing problems of administration and the plan of this Astoria Study, it devotes chapters to the school physician and his job, to findings and follow-up, and emphasizes the cooperative and educational phases of the effort by a chapter on teacher participation and one on the educational opportunities of the nurse and another on the daily tasks of the school nurse.

To the public health or school health administrator, a particularly interesting chapter is that on Keeping School Medical Records Alive, which discusses the weaknesses found and the various efforts and devices used to better conditions and to make a "follow-

up" that really followed instead of being a dead card representing a forgotten child in a poorly used file.

A large proportion of the text itself is devoted to such things as testing visual acuity, testing hearing, sponsoring dental care, care for the cardiac child, and then ventures into a discussion of the relationship of private physicians to the school health program, a greatly neglected phase of the integration of school health work with the sentiment and activities of the community in which the school is placed.

Much of the report is taken up with great detail of numbers examined and numbers varying from normal in the different kinds of defects, such as hearing, vision, and the like. Case records are cited showing the repeated failure of personnel to "pass on" information gathered. This is a matter of cooperation and integration. Such failure may be due to one or more causes: lack of realization of its importance, a poor record system, no channel for intercommunication of different types of personnel, poor instructions, inadequate supervision, and even lack of interest. Emphasis on these factors is much needed in many school health programs.

This interesting report brings out several factors of weakness in school health programs. Not the least of these is the failure on the part of personnel, especially supervisors, directors, and even superintendents of schools, to inform themselves as to what has been done in the past in school health services. Such information would prevent waste of valuable time on trying out devices and plans which already have been tried out elsewhere. Admittedly, such information is hard to secure in accurate form. More accurate and more understanding information on the part of state officials, and a greater willingness by local workers to seek advice from state supervisors, would tend to check this waste.

An appendix includes recommendations, samples of various kinds of forms and cards, clerical procedures and suggested type of heart examination. Chas. H. Keene, M.D.

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MEETINGS

American School Health Association and the **American Public Health Association** at St. Louis, Missouri, October 26-30, inclusive, 1942. Headquarters of the **American School Health Association** at the Hotel Statler. It is advisable to make early reservations of hotel rooms.